TOSHIBA PHOTOCOUPLER GaAs IRED & PHOTO-TRIAC

# TLP3064

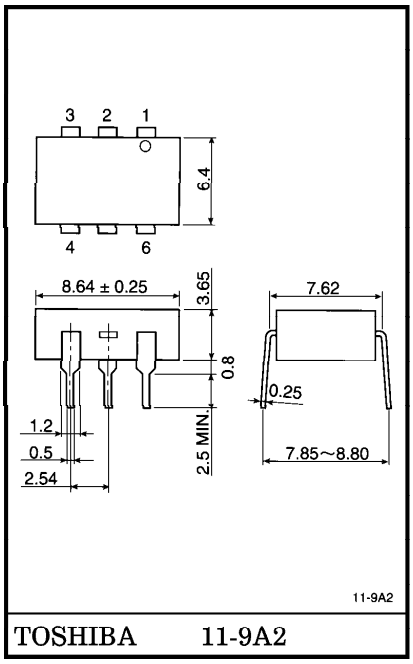
OFFICE MACHINE

HOUSEHOLD USE EQUIPMENT

TRIAC DRIVER

SOLID STATE RELAY

Unit in mm




TOSHIBA 11-9A2

Weight : 0.44g

The TOSHIBA TLP3064 consists of a zero voltage crossing turn-on photo-triac optically coupled to a GaAℓAs infrared emitting diode in a six lead plastic DIP package.

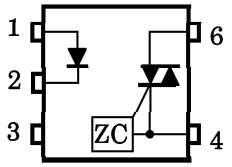
- Peak Off-State Voltage : 600V (Min.)
- Trigger LED Current : 3mA (Max.)
- On-State Current : 100mA (Max.)
- Isolation Voltage : 5000Vrms (Min.)
- UL Recognized : UL1577, File No. E67349
- Option (D4) type
  VDE Approved : DIN VDE0884 / 06.92,
  Certificate No. 83649

  Maximum Operating Insulation Voltage : $890V_{PK}$
  Highest Permissible Over Voltage : $8000V_{PK}$

(Note) When a VDE0884 approved type is needed, please designate the "Option (D4)"

| | 7.62mm pich standard type | 10.16mm pich (LF2) type |
|---|---|---|
| Creepage Distance | 7.0mm (Min.) | 8.0mm (Min.) |
| Clearance | 7.0mm (Min.) | 8.0mm (Min.) |
| Insulation Thickness | 0.5mm (Min.) | 0.5mm (Min.) |

PIN CONFIGURATIONS (TOP VIEW)




1: ANODE
2: CATHODE
3: N.C.
4: TERMINAL 1
6: TERMINAL 2

(ZC : Zero-cross Circuit)

961001EBC2

MAXIMUM RATINGS (Ta = 25°C)

| | CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|---|
| LED | Forward Current | | $I_F$ | 30 | mA |
| | Forward Current Derating (Ta≧25°C) | | $\Delta I_F$ / °C | −0.3 | mA / °C |
| | Peak Forward Current (100μs pulse, 100pps) | | $I_{FP}$ | 1 | A |
| | Reverse Voltage | | $V_R$ | 5 | V |
| | Junction Temperature | | $T_j$ | 125 | °C |
| DETECTOR | Off-State Output Terminal Voltage | | $V_{DRM}$ | 600 | V |
| | On-State RMS Current | Ta = 25°C | $I_{T(RMS)}$ | 100 | mA |
| | | Ta = 70°C | | 50 | |
| | On-State Current Derating (Ta≧25°C) | | $\Delta I_T$ / °C | −1.1 | mA / °C |
| | Peak On-State Current (100μs pulse, 120pps) | | $I_{TP}$ | 2 | A |
| | Peak Nonrepetitive Surge Current ($P_W$ = 10ms, DC = 10%) | | $I_{TSM}$ | 1.2 | A |
| | Junction Temperature | | $T_j$ | 115 | °C |
| Storage Temperature Range | | | $T_{stg}$ | −55~150 | °C |
| Operating Temperature Range | | | $T_{opr}$ | −40~100 | °C |
| Lead Soldering Temperature (10s) | | | $T_{sol}$ | 260 | °C |
| Isolation Voltage (AC, 1min., R.H.≦60%) (Note 1) | | | $BV_S$ | 5000 | Vrms |

(Note 1) Device considered a two terminal device = Pins 1, 2 and 3 shorted together and pins 4 and 6 shorted together.

RECOMMENDED OPERATING CONDITIONS

| CHARACTERISTIC | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|
| Supply Voltage | $V_{AC}$ | — | — | 240 | Vac |
| Forward Current | $I_F$ | 4.5 | 6 | 7.5 | mA |
| Peak On-State Current | $I_{TP}$ | — | — | 1 | A |
| Operating Temperature | $T_{opr}$ | −10 | — | 85 | °C |

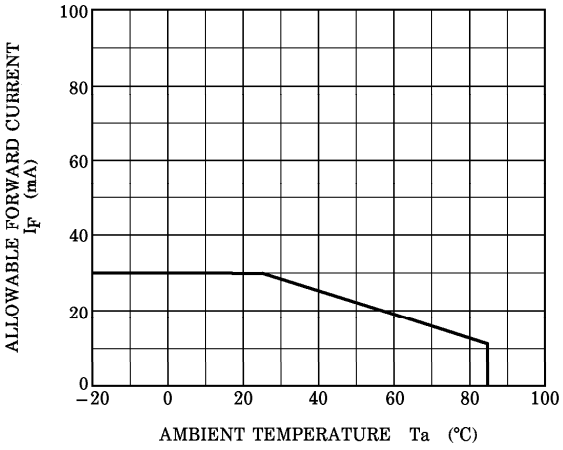
INDIVIDUAL ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| | CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| LED | Forward Voltage | $V_F$ | $I_F$ = 10mA | 1.2 | 1.4 | 1.7 | V |
| | Reverse Current | $I_R$ | $V_R$ = 3V | — | — | 10 | μA |
| | Capacitance | $C_T$ | V = 0, f = 1MHz | — | 30 | — | pF |
| DETCETOR | Peak Off-State Current | $I_{DRM}$ | $V_{DRM}$ = 600V | — | 10 | 1000 | nA |
| | Peak On-State Voltage | $V_{TM}$ | $I_{TM}$ = 100mA | — | — | 3.0 | V |
| | Holding Current | $I_H$ | — | — | 0.6 | — | mA |
| | Critical Rate of Rise of Off-State Voltage | dv / dt | $V_{in}$ = 240rms<br>Ta = 85°C | 200 | 500 | — | V / μs |
| | Critical Rate of Rise of Commutating Voltage | dv / dt (c) | $V_{in}$ = 60Vrms<br>$I_T$ = 15mArms | — | 0.2 | — | V / μs |

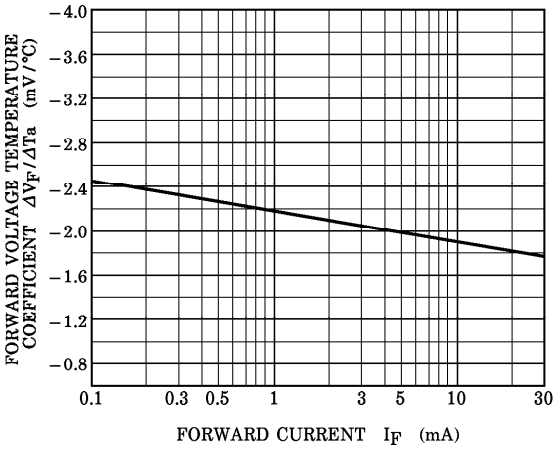
COUPLED ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Trigger LED Current | $I_{FT}$ | $V_T$ = 6V, Resistive Load | — | — | 3 | mA |
| Inhibit Voltage | $V_{IH}$ | $I_F$ = Rated $I_{FT}$ | — | — | 50 | V |
| Leakage in Inhibited State | $I_{IH}$ | $I_F$ = Rated $I_{FT}$<br>$V_T$ = Rated $V_{DRM}$ | — | — | 600 | μA |
| Capacitance Input to Output | $C_S$ | $V_S$ = 0, f = 1MHz | — | 0.8 | — | pF |
| Isolation Resistance | $R_S$ | $V_S$ = 500V, R.H. ≦ 60% | $1\times10^{12}$ | $10^{14}$ | — | Ω |
| Isolation Voltage | $BV_S$ | AC, 1 minute | 5000 | — | — | Vrms |
| | | AC, 1 second, in oil | — | 10000 | — | |
| | | DC, 1 minute, in oil | — | 10000 | — | Vdc |

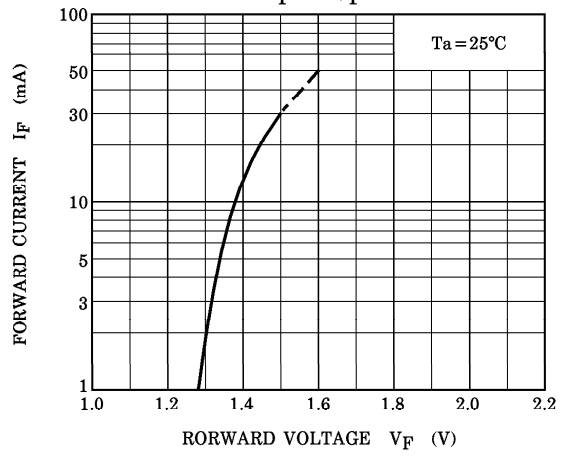
$I_F$ – Ta



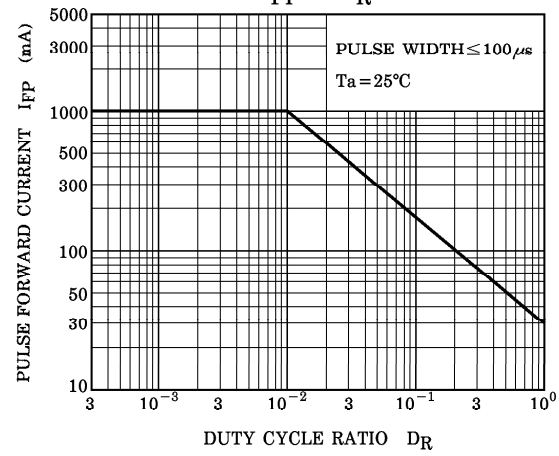

$\Delta V_F / \Delta Ta$ – $I_F$



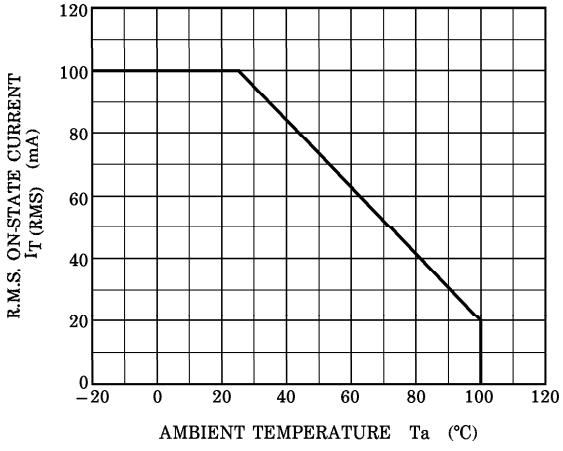

$I_F$ – $V_F$



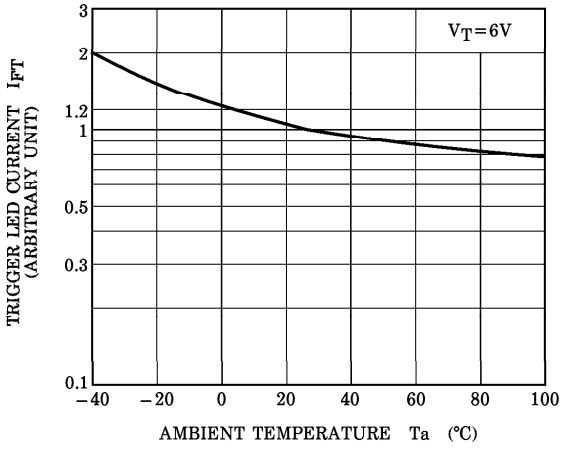

$I_{FP}$ – $D_R$



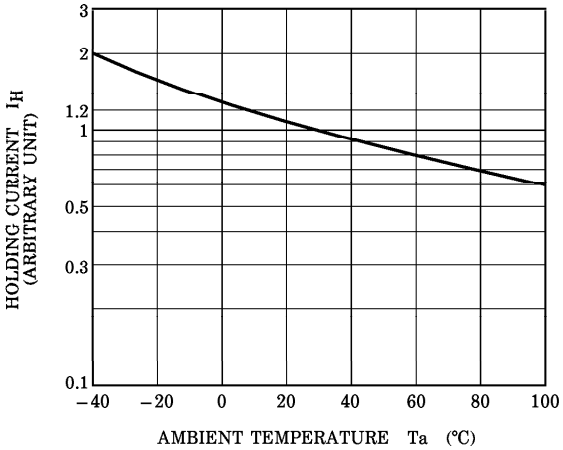

$I_{T\,(RMS)}$ – Ta



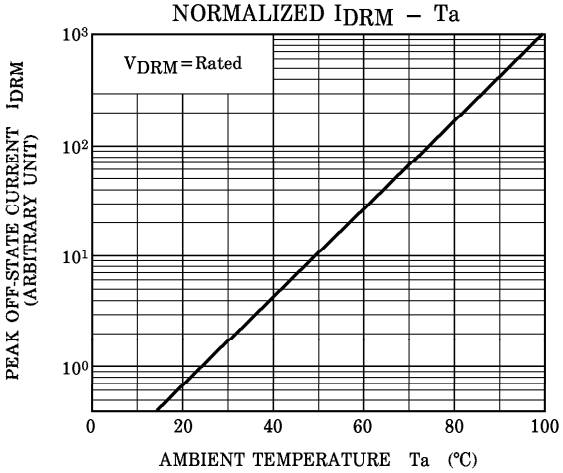
NORMALIZED $I_{FT}$ – Ta



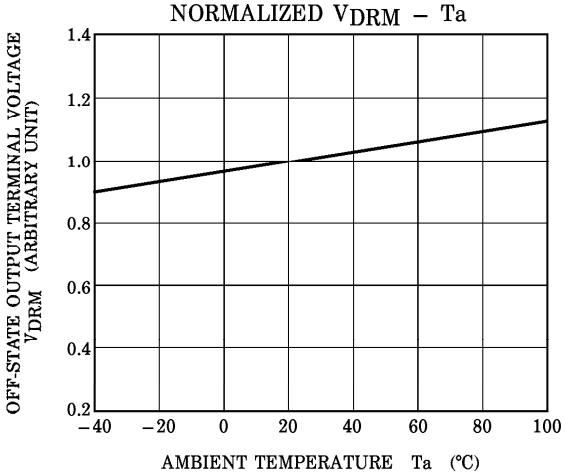

NORMALIZED $I_H$ – Ta



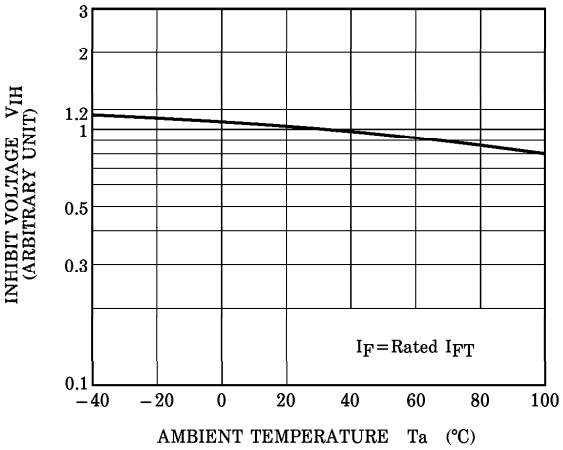

NORMALIZED $I_{DRM}$ – Ta




NORMALIZED $V_{DRM}$ – Ta




NORMALIZED $V_{IH}$ – Ta




NORMALIZED $I_{IH}$ – Ta